

REMARKS

Specification

In response to the objection to the specification, Paragraph [0032] has been amended to refer to Figure 12.

Claim Objections

In response to the objection of claim 5, the second period has been deleted.

Claim Rejections

35 U.S.C. § 112, second paragraph

Claims 1-12, 16-26, 30-42, 44, and 45 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention. Applicants have amended the preamble of claim 1 to indicate that the process is a catalytic polymerization process. However, the amendment is made without prejudice or disclaimer. The Subject Application is also directed toward a method of determining the suitability of a transition metal complex for use in a catalytic reaction, such as, but not limited to, atom transfer radical polymerization ("ATRP"), atom transfer radical addition ("ATRA"), atom transfer radical cyclization ("ATRC") and other catalytic redox processes. Applicants respectfully submit that one skilled in the art would understand that the catalysts with the properties of claim 1 may be suitable for reacting acidic monomers may in other catalytic atom transfer reactions such as ATRA and ATRC. Such catalysts are sufficiently able extract a radically transferable atom or group from an initiator to allow addition of the acidic monomer (olefinically unsaturated compound).

35 U.S.C. 102(b)

Claims 1, 2, 10, 11, 16, 18, 24, 25, 30, 32, 33, 41, and 44 are rejected under 35 U.S.C. 102(b) as being anticipated by United States Patent No. 3,037,004 issued to Simone et al. (Simone). Applicants have amended claim 1, to include the limitations from claim 17 that were not indicated to be anticipated by Simone. Claim 1 now includes the limitation that the suitable transition metal complex has acidity constants of the protonated ligand greater than 10^{-4} and conditional disproportionation constant than less than 1000. Reconsideration of the rejection based upon Simone is respectfully requested.

35 U.S.C. § 103(a)

Claims 1-45 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over United States Patent No. 5,807,937 issued to Matyjaszewski et al (the "937 patent"). The '937 patent is an excellent and broad description of atom transfer radical polymerization processes. The specific combinations of claim 1 as amended are not disclosed in the '937 patent. A declaration of one of the inventors, Nicolay V. Tsarevsky, explains that the disclosure of the '937 patent does not disclose or suggest the specific combinations of claim 1 of the Subject Application nor do any of the exemplary catalysts using the exemplary ligands, bipyridine, 4,4'-di-(5-nonyl)-2,2' bipyridyl (dNbipy), 4,4'-di-n-heptyl-2,2' bipyridyl (dHbipy), and 4,4'-di-tert-butyl-2,2' bipyridyl (dTbipy) meet the requirements of claim 1 as amended.

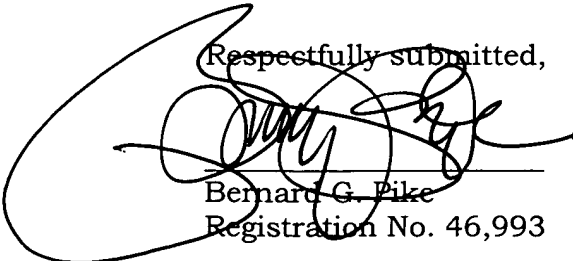
In the declaration Dr. Tsarevsky states that a suitable catalyst for polymerizing acidic monomers may have a combination of the following properties, at least partially soluble in the reaction media, possess a low redox potential, stability towards ionic species, low propensity to disproportionation, and sufficient conditional metal-radically transferable atom or group phylicity to act as a catalyst in the reaction

media.

Ligands having such properties are a narrow set of ligands compared to the set of ligands described in the '937 patent and these parameters are not taught in the '937 patent or elsewhere prior to filing of the Subject Application. One skilled in the art would not find these properties obvious from the disclosure of the '937 patent and we performed much intense research to define these parameters. The Subject Application (see Paragraphs [0063] to [0074] and Example 4A, and the attached article entitled *Factors Determining the Performance of Copper-Based ATRP Catalysts and Criteria for Rational Catalyst Selection* analyze catalysts exemplified in the '937 patent to show that they do not have the properties described for a suitable catalyst meeting the characteristics of claim 1.

Examination of the application's elected claims and issuance of a Notice of Allowance at an early date are earnestly solicited. If the Examiner has any concerns regarding Applicants' present response, he is invited to contact Applicants' undersigned representative at the telephone number listed below so that those concerns may be expeditiously addressed.

Respectfully submitted,



Bernard G. Pike
Registration No. 46,993

KIRKPATRICK & LOCKHART NICHOLSON GRAHAM LLP
Henry W. Oliver Building
535 Smithfield Street
Pittsburgh, PA 15222-2312
Telephone: (412) 355-8620

Facsimile: (412) 355-6501